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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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07/25/2001

Tadao Endo

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06/23/2004

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EXAMINER

GAGLIARDI, ALBERT J

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/911,616	ENDO, TADAO	
	Examiner	Art Unit	
	Albert J. Gagliardi	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15,16 and 20-39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15,16 and 20-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>05/04</u> . | 6) <input type="checkbox"/> Other: ____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 28 May 2004 has been entered.

Election/Restrictions

2. The examiner notes that the claims are directed to at least two inventions (Group 1 directed to a imaging apparatus and methods utilizing two light sources and Group 2 directed to a detection apparatus only claiming one light source and with further limitations directed to a housing and a substrate. The examiner notes that no restriction has been made at this time but that depending on the course of prosecution and the additional burdens on the examiner of examiner two different inventions, a restriction may be made at a later date.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 29-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 29-32, the limitation of a “photoconductor” is unclear. The examiner notes that as typically used in the art the term would be considered to relate to a particular type of photoelectric conversion element; but in at least some of the claims, the term seems to mean something different. In one limitation the substrate may be both insulating and photoconductive; but those skilled in the art would consider an insulator and a photoconductor as mutually exclusive such that the substrate may be either an insulator or a conductor, but not both. Additionally, the disclosure does not seem to support any embodiment wherein the insulating substrate is actually a photoconductor.

The examiner notes that in an embodiment shown in Fig. 12, it appears that the substrate is “light transmissive” and used to help guide the light toward the photoelectric conversion elements. This use of the substrate is fundamentally different than using it as a photoconductor and the meaning of the term as used in the claims is unclear. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999). In this case it appears that the term “photoconductor” in claim 30 is used by the claim to mean “light guide” or “light transmissive”, while the accepted meaning is “a

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material that is electrically conductive when exposed to light.” The term is indefinite because the specification does not clearly redefine the term.

Regarding claim 30 and 32, it is unclear which portion of the “photoconductor” is the “side face.” As such, the relative location of the light source is unclear.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 15-16, 20-27, 32, 34 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Rutten *et al.* (US 5,905,772).

Regarding claim 15, *Rutten* discloses (Fig. 1) an image data processing system comprising photoelectric conversion device (4) comprising a substrate (30) provided with a plurality of photoelectric conversion elements (21) and a light source (5) radiating light having no image data; a radiation source (1) and a control means (13) for independently controlling the radiation source, the light source and the photoelectric conversion device; wherein the control means drives the radiation source during an image-pickup period and drives the light source during a non-image pickup period ((col. 3, lines 3-9).

Regarding claim 16, *Rutten* discloses (Fig. 1) driving method of an image data processing system comprising a first and second light source (7 and 5, respectively), a semiconductor element (21) having a semiconductor absorbing layer having an absorption region in a wavelength of light radiated from the second light source (5); and a control means (13) for

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independently controlling the first and second light sources, comprising the steps of: radiating light of the first light source during an image-pickup period and drives the second light source during a non-image pickup period (col. 3, lines 3-9).

Regarding claim 20, *Rutten* discloses (Fig. 1) driving method of a radiation image-pickup device having a plurality of photoelectric conversion elements (21) comprising: a radiation photographing step of radiating radiation onto an object (4) to be read out in order to obtain image information (col. 3, lines 3-9); and a step of radiating light of a light absorbing wavelength region of the photoelectric conversion elements (21) before an image pickup step (col. 3, lines 3-9).

Regarding claim 21, *Rutten* discloses that the radiation source is an x-ray source (1).

Regarding claim 22, *Rutten* discloses that the light source is and LED source (41).

Regarding claim 23, *Rutten* discloses that the first source is an x-ray source (1).

Regarding claim 24, *Rutten* discloses a step of resetting an electric charge of the semiconductor element (col. 2, lines 11-18).

Regarding claim 25, *Rutten* discloses that the second light source is and LED source (41).

Regarding claim 26, *Rutten* discloses that the radiation is x-radiation (1).

Regarding claim 27, *Rutten* discloses a step of resetting an electric charge of the conversion elements (col. 2, lines 11-18).

Regarding claim 32, as best understood, *Rutten* discloses that the image data processing system comprises a light transmissive substrate (30) and the light source (5) is located at a side face (the side opposite the radiation source (1)) of the photoelectric conversion elements (21) and/or the substrate (30).

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Regarding claim 34, *Rutten* discloses a step of repeating the image pickup period several times and reading out a motion image (col.5, lines 30-33).

Regarding claim 37, *Rutten* discloses a step of repeating the image pickup period several times and reading out a motion image (col.5, lines 30-33).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 28-31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rutten et al.* (US 5,905,772) in view of *Mochizuki* (US 5,777,335).

Regarding claim 28, *Rutten* discloses (Figs. 1 and 3-4) a radiation detection apparatus comprising: a plurality of photoelectric conversion elements (21), a light source (5) for radiating a light ray, its wavelength including a wavelength region of light absorption of the photoelectric conversion elements (col. 6, lines 15-25).

Although *Rutten* does not specifically disclose an outer casing that houses the conversion elements and the light source, those skilled in the art appreciate that it is well known to house the radiation detection apparatus is an outer casing such as a cassette (see, for example, *Mochizuki* at Fig. 1) in order to protect the apparatus and allow for easy handling. As such the use of an outer casing would have been a matter of routine design choice within the skill of a person of ordinary skill in the art in order to allow for protection of the radiation apparatus.

Regarding claim 29, as best understood, *Rutten* discloses that the apparatus comprises a photoconductor (col. 7, lines 12-14).

Regarding claim 30, as best understood, the light source (5) is located at a side face (the side opposite the radiation source (1)) of the photoelectric conversion elements (21) and/or the substrate (30).

Regarding claim 31, as best understood, *Rutten* discloses that the photoelectric conversion elements are arranged on an insulating substrate (30) and that the substrate is light transmissive and is used to help guide the light toward the photoelectric conversion elements (see generally Fig. 3).

Regarding claim 33, in the device suggested by *Rutten* in view of Mochizuki (see explanation regarding claim 28 above), *Mochizuki* suggests the use of an outer casing.

10. Claims 35-36 and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rutten* in view of Nakagawa *et al.* (US 4,737,653).

Regarding claims 35 and 38, *Rutten* does not specifically disclose the details regarding the processing of the output image signal.

Regarding the processing of the output signal, *Nakagawa* discloses at least one of a variety of processing schemes known in the art wherein an output of a photoelectric conversion element exposed to a first light source and a second bias light source is processed by subtracting from the output of the image-pickup period, output signals of a period different from the image-pickup period (col. 2, lines 24-36). Those skilled in the art appreciate that such processing allows for improved imaging quality by reducing unwanted signals and noise. Therefore it would have been obvious, if not already inherent, to modify the method disclosed by *Rutten* to

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include a step of subtracting from the output of the image-pickup period, output signals of a period different from the image-pickup period in order to improve image quality.

Regarding claim 36 and 39, absent some degree of criticality, and in view of the cyclical nature of the image-pickup, period, the selection of a different period as a period occurring after the image-pickup period is viewed as a matter of routine design choice within the skill of a person of ordinary skill in the art depending on the needs of the particular application.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert J. Gagliardi whose telephone number is (571) 272-2436. The examiner can normally be reached on Monday thru Friday from 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Albert J. Gagliardi
Primary Examiner
Art Unit 2878

AJG